

## What is claimed is:

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1. An apparatus for processing a substrate, the apparatus comprising:
- (a) a chamber; and
- (b) a pump adjacent to the chamber, the pump having an inlet connected to the chamber for evacuating gas in the chamber and an outlet that exhausts the evacuated gas to atmospheric pressure.
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2. An apparatus according to claim 1 further comprising a foreline extending between the inlet of the pump and the chamber, the foreline having a length of less than about 2 m.
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3. An apparatus according to claim 2 wherein the foreline comprises a diameter of less than about 80 mm.
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4. An apparatus according to claim 1 that is substantially absent a foreline between the inlet of the pump and the chamber.
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5. An apparatus according to claim 1 wherein the pump is abutting the chamber.
6. An apparatus according to claim 1 wherein the pump comprises a pre-vacuum pump or a low vacuum pump.
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7. An apparatus according to claim 1 further comprising a pressure controller for controlling the pressure of the gas in the chamber by adjusting a speed of the pump.
8. An apparatus according to claim 1 wherein the chamber comprises a load-lock chamber, transfer chamber or process chamber.

9. An apparatus for processing a substrate, the apparatus comprising:

- Sub B3 37
- (a) a load-lock chamber comprising an enclosure; and
  - (b) a pump adjacent the load-lock chamber, the pump having an inlet connected to the load-lock chamber for evacuating gas from the load-lock chamber and an outlet that exhausts the gas to atmospheric pressure.

10. An apparatus according to claim 9 wherein the inlet is connected directly to the load-lock chamber and is substantially absent a foreline.

10 11. An apparatus according to claim 9 further comprising a foreline extending between the inlet of the pump and the load-lock chamber, the foreline having a length of less than about 2 m.

15 12. An apparatus according to claim 11 wherein the foreline comprises a diameter of less than about 80 mm.

20 13. An apparatus according to claim 1 wherein the pump is abutting the load-lock chamber.

14. An apparatus according to claim 9 wherein the pump comprises a pre-vacuum pump or a low vacuum pump.

Sub B4 25 15. An apparatus according to claim 9 further comprising a pressure controller for controlling the pressure of the gas in the load-lock chamber by adjusting a speed of the pump.

16. An apparatus for processing a substrate, the apparatus comprising:

- Sub 30 37
- (a) a process chamber comprising a support and a gas distributor; and
  - (b) a pumping system comprising a pre-vacuum pump adjacent to the process chamber, the pre-vacuum pump having an inlet connected to the

process chamber to evacuate gas from the process chamber and an outlet that exhausts the evacuated process gas to atmospheric pressure,

whereby a substrate held on the support is processed by process gas introduced through the gas distributor into the process chamber.

17. An apparatus according to claim 16 further comprising a high vacuum pump having an inlet connected to the process chamber and an outlet that exhausts to the pre-vacuum pump.

18. An apparatus according to claim 17 wherein the pre-vacuum pump is capable of evacuating the process chamber from about atmospheric pressure to less than about 0.1 Torr, and the high vacuum pump is capable of evacuating the process chamber from about 0.1 Torr to less than about  $10^{-9}$  Torr.

19. An apparatus according to claim 16 further comprising a foreline extending between the inlet of the pre-vacuum pump and the process chamber, the foreline having a length of less than about 2 m.

20. An apparatus according to claim 19 wherein the foreline comprises a diameter of less than about 80 mm.

21. An apparatus according to claim 16 wherein the inlet is connected directly to the process chamber substantially without a foreline.

22. An apparatus according to claim 16 wherein the pre-vacuum pump is abutting the process chamber.

23. An apparatus according to claim 16 further comprising a pressure controller for controlling the pressure of the process gas in the process chamber by adjusting a speed of the pre-vacuum pump.

24. An apparatus for processing a substrate, the apparatus comprising a chamber, a pump, and a pressure controller for controlling a gas pressure in the chamber by providing a signal in relation to the gas pressure to a pump controller that changes the speed of the pump in relation to the signal.

25. An apparatus according to claim 24 wherein the pump controller changes a rotational speed of the pump.

26. An apparatus according to claim 24 wherein the pump controller changes a speed of an evacuating member of the pump.

27. An apparatus according to claim 24 wherein the pump comprises a pre-vacuum pump or a low vacuum pump.

28. An apparatus according to claim 24 that is substantially absent a foreline between the pump and the chamber.

29. An apparatus according to claim 24 wherein a foreline extending between the pump and the chamber comprises a length of less than about 2 m.

30. An apparatus according to claim 24 wherein the pump is abutting the chamber.

31. A method of processing a substrate, the method comprising the steps of evacuating gas from a chamber by a pump and regulating the pressure of the gas in the chamber by adjusting a speed of the pump.

32. The method of claim 31 further comprising the step of placing one or more substrates in a chamber comprising a load-lock, transfer or process chamber.

33. The method of claim 31 comprising the step of adjusting a rotational speed of an evacuating member of the pump.

34. The method of claim 31 further comprising the step of measuring a pressure of gas in the chamber and adjusting the speed of the pump in relation to the measured pressure of gas.

5 35. A method of processing a substrate in a chamber, the method comprising the steps of:

(a) placing a substrate on a support in the chamber and evacuating the chamber with a pump;

(b) introducing gas into the chamber, and optionally energizing  
10 the process gas, to process the substrate on the support; and

(c) regulating the pressure of the gas in the chamber by adjusting a speed of the pump.

36. The method of claim 35 wherein step (c) comprises the step of  
15 adjusting a rotational speed of the pump.

37. The method of claim 35 wherein step (c) further comprises the step of measuring a pressure of the gas in the chamber and adjusting a speed of the pump in relation to the measured pressure of gas in the chamber.

20 38. An apparatus for processing a substrate, the apparatus comprising a pump having a plurality of inlet ports, a first inlet port provided to evacuate gas from a first chamber or first pump, and a second inlet port provided to evacuate gas from a second chamber or second pump.

25 39. An apparatus according to claim 38 wherein the first inlet port is connected to the first chamber and the second inlet port is connected to the second chamber.

30 40. An apparatus according to claim 38 wherein the first and second inlet ports are connected to one or more inlet stages of the pump.

41. An apparatus according to claim 38 wherein the inlet stages are connected to other stages of the pump in a parallel arrangement.

42. An apparatus according to claim 38 wherein the pump abuts at least one of the chambers.

43. An apparatus according to claim 38 wherein the pump comprises  
5 an outlet that exhausts the evacuated gas to atmospheric pressure.

44. An apparatus according to claim 38 further comprising forelines that extend between the inlet ports and the chambers or other pumps, the forelines each having a length of less than about 2 m.

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45. An apparatus according to claim 38 wherein the inlet ports are connected directly to the chambers or other pumps substantially without forelines.

46. An apparatus according to claim 38 wherein the pump comprises  
15 a pre-vacuum pump or a low vacuum pump.

47. An apparatus according to claim 38 further comprising a pressure controller for controlling the pressure of gas in the chambers by adjusting a speed of the pump.

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48. An apparatus for processing a substrate, the apparatus comprising a multiple inlet pump having a first inlet port in a first inlet stage, and a second inlet port in a second inlet stage, the first inlet port provided to evacuate gas from a first chamber or first pump, and a second inlet port provided to evacuate gas  
25 from a second chamber or second pump.

49. An apparatus according to claim 48 wherein the first inlet port is connected to the first chamber and the second inlet port is connected to the second chamber.

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50. An apparatus according to claim 48 wherein the multiple inlet pump abuts at least one of the chambers.

51. An apparatus according to claim 48 wherein the multiple inlet pump comprises an outlet that exhausts the evacuated gas to atmospheric pressure.

52. An apparatus according to claim 48 further comprising forelines  
5 that each have a length of less than about 2 m.

53. An apparatus according to claim 48 wherein the inlet ports are connected directly to the chambers or other pumps substantially without forelines.

10 54. An apparatus according to claim 48 wherein the multiple inlet pump comprises a pre-vacuum pump or a low vacuum pump.

55. An apparatus according to claim 48 further comprising a pressure controller for controlling the pressure of gas in the chambers by adjusting a speed of  
15 the pump.

56. An apparatus for processing a substrate, the apparatus comprising:

20 (a) a plurality of chambers that are shaped and sized to hold one or more substrates; and

(b) a pump having a first inlet port in a first inlet stage, and a second inlet port in a second inlet stage, the first inlet port provided to evacuate gas from one chamber and a second inlet port provided to evacuate gas from another chamber.

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57. An apparatus according to claim 56 wherein the plurality of chambers are mounted on a single platform, and the pump abuts the platform.

30 58. An apparatus according to claim 56 wherein the first inlet port is connected to a first chamber and the second inlet port is connected to a second chamber.

59. An apparatus according to claim 56 wherein the pump abuts at least one of the chambers.

60. An apparatus according to claim 56 wherein the pump comprises an outlet that exhausts the evacuated gas to atmospheric pressure.

61. An apparatus according to claim 56 further comprising forelines  
5 extending between the inlets ports and the chambers, the forelines each having a length of less than about 2 m.

62. An apparatus according to claim 56 wherein the inlet ports are connected directly to the chambers substantially without forelines.

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63. An apparatus according to claim 56 wherein the pump comprises a pre-vacuum pump or a low vacuum pump.

64. An apparatus according to claim 56 further comprising a pressure  
15 controller for controlling the pressure of gas in the chambers by adjusting a speed of the pump.

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